

## Mobile Cardiopulmonary Exercise Testing on the trampoline

Cardiopulmonary fitness is assessed using cardiopulmonary exercise testing. Typically these exercise tests are performed on a cycle ergometer or on a treadmill. However, this is difficult to achieve for children, as they are often too small and their extensor muscles are too weak for cycle ergometry and their motoric skills are underdeveloped for testing on the treadmill. A new approach is exercise testing during natural movement using mobile cardiopulmonary exercise devices outdoors. This in turn presents problems like providing for the necessary emergency equipment and close proximity to the hospital in case something goes wrong. Especially when working with children with congenital heart disease.

Testing on the trampoline could represent an alternative. Cardiopulmonary exertion on a trampoline can easily be achieved by children and would be feasible indoors. The limitations are:

- 1) ECG that records heart activity accurately without interference from the forces generated by trampoline jumping
- 2) Adequate measurement of power output (like in Watts on the ergometer)

The goal of this research would be to develop a functioning ECG-Recording employable during vigorous jumping and a tool for measuring power during trampolining for children aged 4 – 10 years.